Phillips County Emergency Management Newsletter

May 2026

AMMONIA

Ammonia (NH3) is one of the most widely produced industrial chemicals in the world and is a cornerstone of modern agriculture, industrial refrigeration, and chemical manufacturing.

Because ammonia is widely manufactured, stored, and transported, it is among the hazardous chemicals most frequently encountered by emergency responders.

From a hazard classification perspective, ammonia is a toxic inhalation hazard (TIH) and a corrosive chemical. It is highly soluble in water and reacts to moisture in the eyes, skin, and respiratory tract to form ammonium hydroxide, a caustic compound capable of damaging tissue.

Acute exposure can result in respiratory irritation, eye injury, and potential blindness, dermal burns, pulmonary edema, and fatality in severe cases. Severity depends on concentration, exposure duration, and environmental conditions.

Anhydrous ammonia is stored as a liquified compressed gas. When released, it rapidly vaporizes and absorbs heat, creating localized cooling capable of causing frostbite-like injuries. This rapid phase change contributes to the formation of visible white vapor clouds consisting of ammonia mixed with condensed atmospheric moisture. These clouds can travel significant distances depending on weather conditions.

Plume behavior is influences by wind speed and direction, temperature, humidity, terrain, and atmospheric stability class. Although ammonia vapor is lighter than air under standard conditions, cold releases and high humidity may cause vapors near the ground.

If you can smell it you are too close move upwind farther away immediately.

300 ppm (parts per million) is IDLH (Immediate Dangerous to Life or Health)

What to do during a leak:
Move upwind of the plume
Call 911
Keep away others (if you can do so safely)

If contaminated,:
Remove contaminated clothing and jewelry
Wash with water
Flush eyes thoroughly

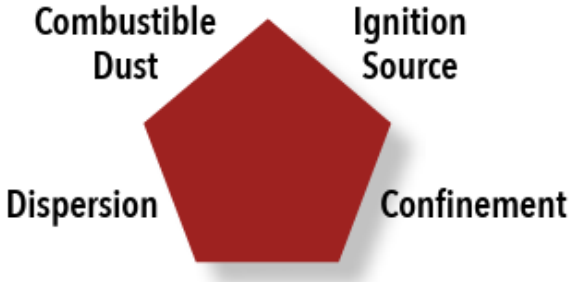
Level A SCBA protection is the highest level of hazardous materials protection, requiring a fully encapsulating, vapor-tight chemical suit paired with a positive-pressure Self-Contained Breathing Apparatus (SCBA). It is used for IDLH (Immediately Dangerous to Life or Health) atmospheres, unknown agents, and high-concentration toxic vapor environments

Combustible Dust Safety

U.S. Chemical Safety and Hazard Investigation Board

Dust fires are unique because, in addition to the three elements of fuel, oxygen, and an ignition source, dust explosions require dispersion and confinement.

Fire Triangle



Dust Pentagon

When the dust is confined, a powerful explosion can occur and propagate. Dust may accumulate on surfaces and lie undisturbed for years. Then an initial fire or explosion, known as a primary event, shakes it loose and it ignites. The resulting pressure wave travels through the plant and dislodges accumulated dust from the rafters, beams, and equipment. This serves as the fuel for the secondary explosions. Most of the fatalities and the devastating injuries have been caused by these secondary dust explosions.

According to the NFPA, a catastrophic explosion can occur from as little as $^{1}/_{32}$ of an inch of accumulated dust, around the thickness of a dime, covering just 5% of a room's surface area. That is why the NFPA recommends that companies control fugitive dust emissions, design facilities to prevent dust from migrating and accumulating, and perform rigorous housekeeping to remove any dust that does build up.

Pipeline Marker Signs

Aboveground signs and markers identify the approximate location of underground pipelines. Markers may look different, but every sign tells you the same information:

Product Transported

24 Hour Emergency Phone Number

Pipeline Company Name